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CONTROL OF RING-BILLED GULL COLONIES AT URBAN
AND INDUSTRIAL SITES IN SOUTHERN ONTARIO, CANADA

by H. Blokpoel¹ and G.D. Tessier¹

ABSTRACT

At eight urban or industrial sites in southern Ontario colonies of Ring-billed Gulls (Larus delawarensis) were controlled to ameliorate problems caused by the adults and their young. At the Nanticoke Generating Station on Lake Erie a growing colony was eliminated by collecting eggs and subsequent harassment of adults. One colony at the Stelco Yards in Hamilton Harbour was eliminated by installing a gull enclosure and collecting eggs from nests outside the enclosure and another was controlled by frequently destroying nests and eggs. At Toronto Island Airport an incipient colony was controlled by collecting eggs and harassing adults. At Mugg's Island, Toronto Harbour, control efforts included construction of a large gull enclosure and repeated egg collection. Large-scale gull-scaring operations during 1984-86 at the Eastern Headland, Toronto Harbour, included the use of tethered raptors, distress cries and pyrotechnical devices. A new colony at Bluffer's Park, just east of Toronto on Lake Ontario, was eliminated by collecting eggs repeatedly. A colony on the yards of the St. Mary's Cement Company in Bowmanville was reduced by alteration of habitat and harassment of the adults.

INTRODUCTION

The estimated Great Lakes population of the Ring-billed Gull (Larus delawarensis) increased from 281000 pairs in 1976 to 648000 pairs in 1984 (Blokpoel and Tessier 1986). In the lower Great Lakes area the population increase was associated

with an increased use of man-made habitat found in or near urban areas and at large industrial complexes in Ontario (Blokpoel and Tessier, 1986) and it has resulted in interference with industrial operations, fouling of public and private properties, potential hazards to public health, and hazards to flight safety (Blokpoel and Tessier, 1986). These problems have created many complaints and requests that something be done to eliminate or ameliorate them.

Ring-billed Gulls are protected in Canada under the Migratory Birds Convention Act which is administered by the Canadian Wildlife Service (CWS) on behalf of the Minister of the Environment. The act was created to protect migratory birds, but acknowledges that birds can be seriously injurious to human interests. Sections 24-28 of the Migratory Bird Regulations make clear that the Minister of the Environment may authorize the killing of birds causing agricultural damage or otherwise threatening human interests.

The roles of CWS (Ontario Region) vis-à-vis gull problems are: to develop and advise on methods for gull control, to evaluate requests for permits to scare or kill gulls and to issue them where warranted, and to monitor effectiveness and side effects of large-scale gull control operations. CWS is not carrying out gull control operations, but plays a co-ordinating role where needed.

In theory, there are three basic approaches to eliminate or reduce a gull colony: (1) prevent nesting, (2) kill nesting adults, (3) destroy eggs or kill chicks (Thomas 1972). In the actual practice of gull control, the following factors are usually considered when selecting a method to control a colony: nature and seriousness of the problem; type and ownership of the colony site; history

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and size of the colony; humaneness, effectiveness and practicality of the various possible methods; likely effects on other wildlife present at the site; and availability of funds, personnel and equipment.

At eight sites in southern Ontario, Ring-billed Gull colonies were controlled using several methods. In this paper we report on these control operations and discuss gull control in Ontario in general.

The following people kindly provided unpublished information: C. Baldwin, J.P. Brennan, D. Cooper, K.P. Hotopp, H.J. Kirwin, S. Kosiewsky, C.E. Meta, V. Portelli, E. Robichaud, P.D. Smith, J. Struger, J. Sullivan, W. Taylor, A.D. Tomlin, U. Watermann, and W. Yule. A. Faraway helped in the field. H. Boyd and S.G. Curtis commented on an earlier version of the manuscript.

COLONY SITES, CONTROL METHODS AND RESULTS

At eight urban or industrial sites in southern Ontario nesting Ring-bills were controlled in one or more years during 1984-86 (Fig. 1). Table 1 lists these sites and shows what approaches and methods were used to control the colonies. Below we report briefly, for each site, the history of the colony, the problems caused by the gulls, the method used to ameliorate the situation and the results obtained. CWS issued permits for these control operations and coordinated them for the colonies along the Toronto waterfront.

Nanticoke Generating Station, Lake Erie

A large well-maintained lawn adjacent to the main building became the site of a new colony in 1982 when 550 pairs nested. In 1983 there were some 2000 nests and in 1984 some 5400 nests were present in early May. The colony was located near the fresh air intake of the building. On days with on-shore winds the odour of the colony permeated the building and nauseated several employees. The



Fig.1. Dots indicate sites in southern Ontario where Ring-billed Gull colonies were controlled during 1984-86.

plant's water supply, equipment and docks were frequently defecated upon and the lawn had become unmanageable.

On 12 May 1984 all eggs were collected by Ontario Hydro staff and buried on site. On following days the gulls were prevented from returning by people patrolling the area on foot, the use of a high pitched whistle, and daily mowing of the lawn. The gulls began to disperse three or four days after egg collection and after eight to ten days all birds had abandoned the area. In 1985 reoccupation was prevented by frequent mowing and by prolonged patrolling of the area using a three-wheeled all-terrain vehicle. In 1986 the gulls were scared off early in the nesting season by three plastic owls hung from posts and the use of shell crackers (H.J. Kirwin, pers. comm.).

Stelco Yards, Hamilton Harbour

In 1983 new colonies became

Table 1. Urban and industrial sites in southern Ontario where breeding of Ring-billed Gulls was controlled during 1984-1986. Locations of the sites are shown in Fig. 1.

Location	Goal	Approach (and methods)	Years
Nanticoke G.S. Lake Erie	elimination of a growing colony	prevention of reproduction (egg collection) and prevention of relaying (scaring adults)	1984-86
Stelco Yards (No. 2 Rod Mill), Hamilton Harbour	elimination of a growing colony	prevention of nesting (installation of wires) and discouragement of nesting (egg collection)	1986
Stelco Yards (Hilton Works), Hamilton Harbour	elimination of a growing colony	discouragement of nesting (destruction of eggs and nests)	1986
Toronto Island Airport, Toronto Harbour, Lake Ontario	prevention of establishment of a new colony	discouragement of nesting (egg collection and scaring adults)	1985, 1986
Mugg's Island, Toronto Harbour, Lake Ontario	prevention of reproduction (short term) and reduction of colony size (long term)	discouragement of nesting (egg collections)	1985, 1986
Eastern Headland, Toronto Harbour, Lake Ontario	elimination of colonies from certain areas	prevention of nesting (scaring adults)	1984-86
Bluffers' Park, Toronto, Lake Ontario	prevention of establishment of a new colony	discouragement of nesting (egg collection)	1986
St. Mary's Cement Company, Bowmanville, Lake Ontario	reduction of a growing colony	discouragement of nesting (changing habitat and scaring adults)	1986

established at two different sites on the extensive yards of the steel company. The first site (Number 2 Rod Mill) is a dike constructed from slag and is adjacent to Hamilton Harbour. This 300 m X 10 m area had been sodded and planted with trees as required by Ontario's Ministry of the Environment. There were some 100 nests in 1983 (P.D. Smith, pers. comm.). The colony grew quickly: on 11 May 1985 an estimated 4650 nests were present (J. Struger, pers. comm.). The nesting gulls soiled the area and destroyed the grass. Gulls nesting on the adjacent road interfered with truck traffic. In 1985 no gull control measures were carried out.

In late March 1986 Stelco staff constructed a gull exclosure, that measured 300 m X 8 m. Parallel monofilament lines, spaced 60 cm, were attached to 2 mm metal wires which were supported by T-bars set in steel posts. Sets of three steel posts were installed at 15 m spacing. The exclosure was highly effective in that not more than 25 gull nests were built under the lines. However, many more nests were built just outside the exclosure. To prevent nesting outside the exclosure, eggs were collected by hand every second day and buried on site. The nests were destroyed by dragging a large sheet of fence wire attached to a boom over the area involved. Collected eggs were not counted but the highest number collected on any day was 500. No eggs were found after 16 June. As requested by CWS, the exclosure was checked twice daily by Stelco staff for gulls entangled in the lines. Eight gulls were found in the wires; one was dead, one had a broken wing, and six were released unharmed (W. Taylor, pers. comm.).

The other site (Hilton Works) consisted of piles of slag adjacent to Hamilton Harbour. Starting with 124 nests in 1983 the colony increased to 250-300 nests early in the 1986 breeding season. The

presence of nests had interfered with handling and storing of materials. Because of the nature of the terrain, it was not feasible to install a gull exclosure. In 1986 the colony was controlled by repeated destruction of eggs and nests (P.D. Smith, pers. comm.).

Toronto Island Airport, Lake Ontario

In 1985 a new colony was found by airport staff near the end of Runway 26. Eggs were regularly collected from a total of 25 to 50 nests from early May to the middle of June when the gulls dispersed. In 1986 Ring-billed Gulls nested again near the end of Runway 26 and all eggs in "hundreds" of nests were repeatedly destroyed from early May till the middle of June. In both years loafing gulls were harassed by frequent patrols equipped with shellcrackers (W. Yule, pers. comm.).

Mugg's Island, Lake Ontario

Mugg's Island is heavily vegetated with shrubs and tall trees. At the north end there is a large, bare, man-made knoll of dredged sand. The gulls nest on the open knoll and under the trees surrounding the knoll. Ring-bills have nested at Mugg's Island since at least 1962 and their number gradually increased to 7715 pairs in 1984. The main problems caused by the Mugg's Island gulls are: a threat to the safety of air traffic in and out of nearby Toronto Island Airport (see Fig. 2), the presence of many starved, sick and/or dying young gulls at the nearby Centre Island Park grounds, and defecations on park facilities and boats.

When a significant reduction of the colony at the nearby Eastern Headland was planned for 1985, it seemed likely that many displaced gulls would move over to Mugg's Island to nest, thus worsening the flight safety problem near Toronto Island Airport. To prevent this from occurring a large gull exclosure was constructed on the sandy knoll in

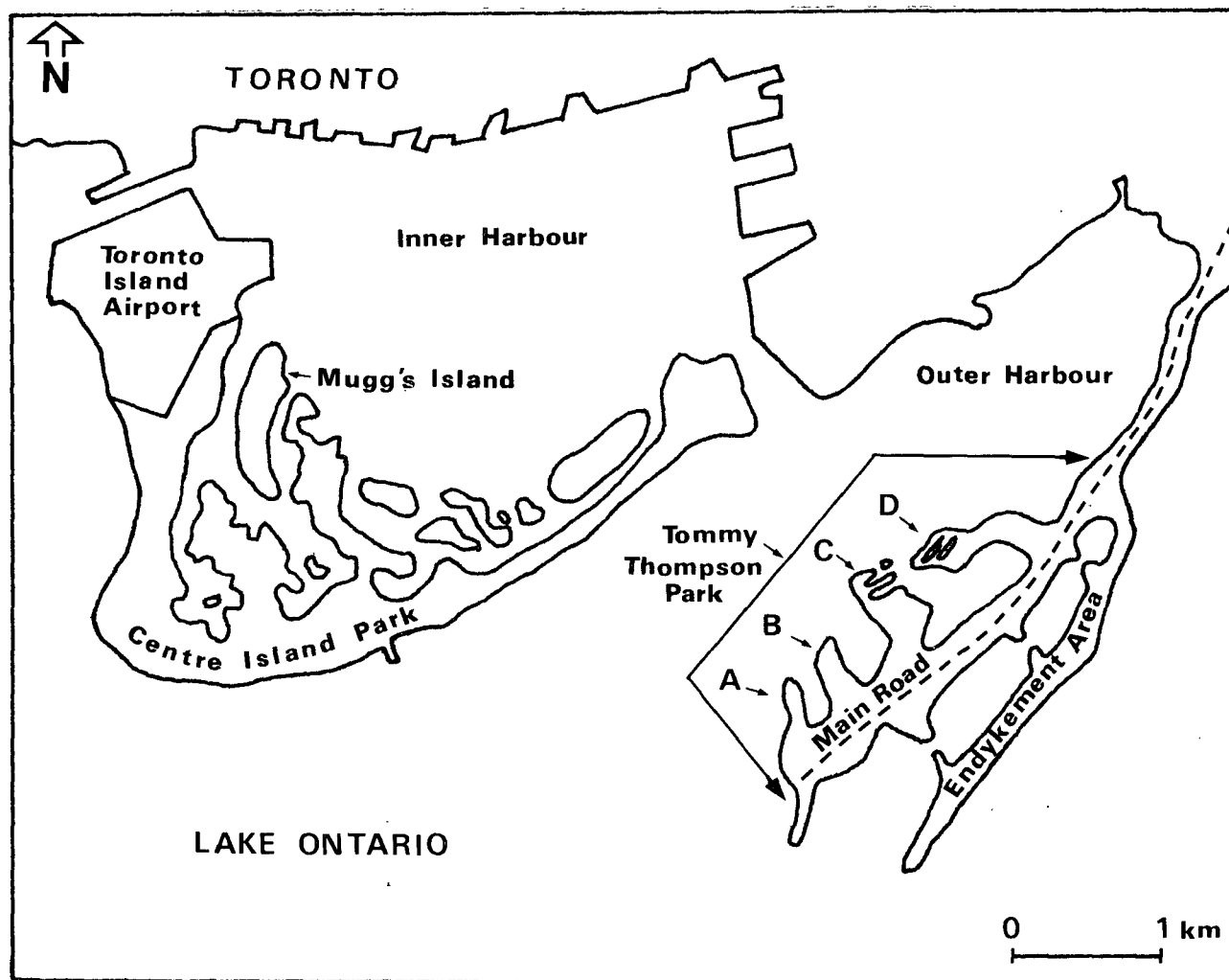


Fig.2. Map showing Ring-billed Gull colony sites in the Toronto area mentioned in the text. The Eastern Headland consists of Tommy Thompson Park and the Endykement Area.

late March 1985 by Toronto Parks and Properties (the owner of Mugg's Island). It consisted of parallel monofilament lines, spaced 60 cm and at approx. 60 cm above the ground. The lines were supported by wooden stakes as described by Blokpoel and Tessier (1983). The exclosure measured ca. 3700 m² and covered more than 90% of the knoll.

The exclosure was very effective in that only a few gulls managed to build a nest under its edges, but the overall island population increased from 7715 pairs in 1984 to 12025 pairs in 1985, probably by an influx of displaced gulls from the Eastern Headland. In 1985 more than 90% of the gulls nested under the trees. At

the request of CWS, the exclosure was checked twice daily for entangled gulls. During 19 April - 19 June a total of 133 gulls were found entangled. Eight of these birds had broken a wing and had to be killed. All others were released unharmed. The exclosure was removed on 29 June (E. Robichaud, pers. comm.).

As soon as it became clear that the exclosure did not result in a smaller colony, it was decided to prevent the gulls from reproducing. On 16 May 1985 a team of 16 staff members of Metro Parks and Properties collected eggs from all nests except for some 170 nests that had pipping eggs and/or chicks. There was re-nesting and by 10 June there were

7200 Ring-bill nests with eggs. On that day all eggs were collected and buried on site in specially dug pits. On 20 June there were not more than 150 nests with eggs (usually only one egg). No further egg pick-ups were carried out in 1985. Metro Parks and Properties estimated that during August and September 1985 a total of 150 young-of-the-year gulls were found dead or dying on the Centre Island Park complex. In 1983 and 1984, 150 to 250 starving young-of-the-year were found every week (E. Robichaud, pers. comm.).

In 1986 the gull enclosure was not installed. On 6 May 1986 there were 10782 Ring-billed Gull nests with eggs. Eggs were removed on 8 May by staff of Metro Parks and Properties with an officer of the Toronto Humane Society in attendance as an observer. Many gulls re-nested and on 29 May all eggs from 9,586 Ring-billed Gull nests were collected. Gulls continued to re-nest and a third collection involving 4240 nests took place on 16 June. On 25 June, the day of our last visit, we saw no nests with eggs. As in 1985, the number of starving young-of-the-year found at Centre Island during summer and early fall 1986 was much lower than in 1983 and 1984 (E. Robichaud, pers. comm.).

Eastern Headland, Toronto Outer Harbour, Lake Ontario

This man-made land spit consists at present of two parts. One part, called Tommy Thompson Park, has been largely completed. The other part, the Endykement Area, is still under construction. Tommy Thompson Park is largely vegetated and is already used by the general public. The Endykement Area is relatively free of vegetation and serves as a disposal site for polluted dredge spoil from the Toronto Inner Harbour for the next several years.

The Ring-billed Gull colony grew quickly: 21 nests in 1973, 10832 in 1976, 22735 in 1978, 67307 in 1980

and an estimated 75000-80000 nests in 1982 and '83. By 1983 the Ring-bills were nesting almost everywhere on Tommy Thompson Park and the Endykement Area and they caused interference with construction operations, destruction of ecologically sensitive areas of regional and national significance, and incompatibility with the official Master Plan for the area.

In spring 1984, the Metropolitan Toronto and Region Conservation Authority hired a bird control specialist to prevent gulls from nesting at the Endykement area, where 1054 pairs had nested in 1983. Control operations ran from 1 April to 31 July. Control methods included the use of a tethered Ferruginous Hawk (Buteo regalis) and Eagle Owl (Bubo bubo), distress calls, a dead gull thrown in the air and shell crackers. No Ring-bills nested at the Endykement Area in 1984. After the success in 1984, the program was expanded in 1985 and 1986 to cover the Endykement Area, the area south of the main road and the heavily vegetated area D (Fig. 2).

In 1985, 2 falcons and 2 assistants worked from 11 March to 2 August. They flew three non-indigenous raptors, a Ferruginous Hawk, a Harris' Hawk (Parabuteo unicinctus), and a Saker Falcon (Falco cherrug), in area D and they used tethered raptors (two hawks and a Prairie Falcon (Falco mexicanus) in the Endykement Areas and the area south of the main road. Other methods employed again included: shell crackers (screamers, whistlers, and bangers), dead gulls thrown in the air, and distress calls (Watermann 1985). In 1986, the same methods were used and the same areas covered as in 1985 (Watermann 1986). The results during 1984-1986 were good: gulls did not nest in the areas where they were not wanted and the population dropped from an estimated 75000-80000 pairs in 1983 to 40160 pairs in 1986.

Bluffer's Park, Lake Ontario

Early in the 1986 breeding season, hundreds of gulls used this newly created park as a loafing area and it was thought that they might start a new colony on an area that was still under construction. The presence of a Ring-bill colony would be incompatible with the planned park use. The park was regularly checked and on 21 May 1986 six nests with eggs and six empty nests were found in the area still under construction, which was closed to the public. During five visits between 21 May and 10 June, 45 eggs were collected, first by CWS staff and later by personnel of Metro Parks and Properties, the owner of the Park. By 11 June the nesting birds had deserted the colony site (V. Portelli, pers. comm.).

St. Marys Cement Company, Bowmanville, Lake Ontario

The yards of the plant consist largely of bare, hard-packed soil, but one section had some natural vegetation growing on moist soil. This area was particularly attractive to the nesting gulls in 1985.

The colony grew from "several hundreds" in 1981 to over 17000 pairs in 1985. In that year the gulls interfered with vehicular traffic by nesting on the sides of the roads and they defecated on plant facilities and equipment.

In 1986, company personnel filled in the vegetated area with hard fill and then levelled and compacted the area using a bulldozer. These operations began before the start of the nesting season, and continued until well into incubation (C.E. Meta, pers. comm.). The change in habitat combined with the bulldozer operations resulted in a large reduction of nests: on 7 May 1986 there were 12133 nests, compared to 17075 nests on 11-12 May 1985.

DISCUSSION

Prevention of nesting by scaring

adults away

Operations at the Eastern Headland showed that it is possible to clear large numbers of Ring-billed Gulls from sites where they have nested for several years through humane, but persistent harassment using various scaring devices. Similar findings were reported for bird control at airports (Blokpoel 1976) and garbage dumps (e.g. Risley and Blokpoel 1984, Southern and Southern 1984).

The main drawback of the method was the high cost, which resulted from having people with specialized skills working long hours for several months at a stretch. Once a colony has been broken up and the gulls have begun to nest elsewhere, it should be much easier to prevent gulls from recolonizing the site. An unskilled patrol team, provided with motorbikes, shell crackers and distress cries, may well be able to keep gulls from reoccupying the site in coming years.

Prevention of nesting by impermanent habitat changes

Installing monofilament lines over nesting areas worked well at the Stelco Yards and Mugg's Island in keeping gulls out. Only a few birds nested in the treated areas where thousands of gulls had nested in previous years. However, gulls nested outside the enclosure and to obtain total elimination of a colony all suitable habitat must be covered by wires or lines.

The main drawbacks of monofilament lines are the high cost (because installation of the lines is labor-intensive) and the need to check the gull enclosures twice a day for entangled gulls.

Prevention of nesting by permanent habitat changes

This method was used only at Bowmanville and its effectiveness could not be evaluated because the bulldozing continued until well into incubation. Although Ring-billed

Gulls prefer to nest on terrain that has some features (e.g. sparse vegetation, driftwood, rubble, etc.) the birds will also nest on featureless substrate (e.g. bare sand) as long as other Ring-bills nest in adjacent areas, which do have visual relief. We predict that, unless the gulls are disturbed in 1987, the colony in Bowmanville will increase again despite the habitat changes brought about in 1986.

In general, changing the nesting habitat permanently so as to make it unsuitable for nesting by Ring-bills would be ecologically sound, humane, and costly. If dense shrubbery were used it would have to be planted over the entire area. Otherwise gulls would nest in the non-planted area and their defecations and trampling could slowly kill the planted vegetation.

Prevention of reproduction by collecting eggs

If their eggs are removed, gulls normally re-lay and another egg pick-up is required. If gulls fail to reproduce for several breeding seasons they tend to move to other colonies. Thus egg removal, carried out over several years, can also serve to reduce or eliminate a colony in a humane way. The abandonment process will be speeded up if, after egg collection, the nests are raked and the birds scared off to prevent them from renesting.

At the Mugg's Island colony eggs were collected in 1985 and 1986, but after the egg collections no attempts were made to prevent the adults from renesting by scaring them away. Because they were not scared away, many gulls renested and after the second egg collection in 1986, many apparently renested a second time. Some of the eggs laid after the egg pick-ups may have been produced by late nesters rather than early nesters that renested.

The three egg collections necessary to prevent reproduction at Mugg's Island in 1986 involved much

labour. However, the managers of the Centre Island Park complex prefer to employ people early in the season for egg collection instead of having staff members look after starving and injured birds during the peak of the season (E. Robichaud, pers. comm.).

After eggs were collected in 1985, the number of nests at Mugg's Island dropped by 13% in 1986. We predict that an annual egg collection program will further reduce the nesting population in 1987 and beyond.

At Bluffer's Park eggs were collected in 1986 to prevent a small new colony from becoming established in an area under construction. Adults were not frightened away. Once construction is completed and people and their dogs have access to the area, gulls will probably not try to nest again.

At both the Nanticoke colony and the Toronto Island Airport colony, eggs were collected and the adults harassed. The Nanticoke colony was eliminated but at Toronto Island Airport gulls continued to nest. This difference is most likely due to the presence of the large nearby colonies at Mugg's Island and Tommy Thompson Park. Displaced gulls from those two colonies may have settled at the airport simply because it was the nearest suitable site. There were no Ring-bill colonies in the immediate vicinity of Nanticoke.

Gull control in Ontario in general

In a previous report we recommended that an effort be made to determine the need for and feasibility of an on-going, biologically sound, socially acceptable, internationally co-ordinated program to reduce the Ring-billed Gull population in the Great Lakes area (Blokpoel and Tessier 1986).

During the last few years the need for such an ambitious program has not been documented. At Ontario airports, bird control contractors are able to keep gull problems down. In Ontario's agriculture, expected increases in depredation by gulls of

crops such as tomatoes were not reported. In 1985 Ring-bills were for the first time feeding on cherries in the Niagara Peninsula of Ontario (H. Blokpoel, unpublished data), but during 1986 cherry depredation was minor (C. Baldwin, pers. comm.). Many farmers had complained that Ring-billed Gulls were eating too many earthworms (and were thus reducing soil fertility), but a study by Agriculture Canada in 1985 showed that this was not the case (A.D. Tomlin, pers. comm.). In cases where gulls depredated crops in Ontario, CWS issued permits to the farmers involved to scare and/or kill those gulls to protect their crops. Although this method is not ideal, most farmers who use it find it effective.

On the other hand, in urban and industrial areas in southern Ontario Ring-billed Gull problems continue to grow. Most recently, Ring-bills began nesting on the flat roof of a building near Owen Sound, Ontario, and if that behaviour spreads there will be many more problems (Blokpoel and Smith in press). Gull problems in urban areas during and immediately after the breeding season are usually caused by nesting adults and their offspring, but non-nesting subadults can also be a nuisance.

The Ring-billed Gull has become somewhat urbanized in the lower Great Lakes area in that increasing numbers have begun to feed, rest and nest in urban and industrial areas. This gradual urbanization process is not well documented or understood but it is clear that Ring-bills have lost much of their fear of man and are now able to take advantage of the many opportunities in the human environment (new places to rest and nest, and new sources of food). The colonization of man-made sites is presumably affected by the availability of natural sites (which in turn depends on lake levels), food sources, mammalian and avian predation and human disturbance.

The increasing numbers of gulls nesting near towns and cities will result in increasing demands for their control. It is likely that CWS will continue to issue permits to land owners to reduce or eliminate gull colonies on their lands. Such control operations will not involve the total elimination of colonies in all urban areas but will result in a reduction of regional nesting populations to more acceptable levels. Because of a general dislike of killing gulls, the control operations will probably use the methods discussed in this paper, i.e. scaring of adults, use of wires, and long-term egg collections. Displaced gulls will have to find new nesting sites. This will cause new problems because the gulls might attempt to nest on hitherto unused man-made habitats rather than establish new colonies on natural sites. In the lower Great Lakes there are not many suitable natural sites (i.e. islands with little vegetation and no human presence) and those that do exist are often already occupied by the larger Herring Gull (Blokpoel 1977, Scharf et al. 1978, Weseloh et al. in press). Continued control of the large urban colonies in southern Ontario will probably result in:

- (a) further increases of existing nearby urban colonies in the U.S. For example, the colony at Bethlehem Steel at Stony Point near Buffalo increased from 847 pairs in 1980 to over 10000 pairs in 1986 (K.P. Hotopp, pers. comm.);
- (b) an increase in attempts to start new colonies such as the ones reported in this report for Ontario.
- (c) an increased chance that roof-nesting will catch on in the lower Great Lakes area.
- (d) an increase in the pressure by Ring-billed Gulls on other species, especially at mixed-species colonies, where Ring-bills are known to usurp

nesting habitat of Common Terns (Courtney and Blokpoel 1983) and, occasionally, of Caspian Terns (Blokpoel; unpublished data).

Despite the problems that will result when large numbers of gulls nesting in urban and industrial sites are displaced, control operations to reverse the urbanization of Ring-billed Gulls in the lower Great Lakes area appear justified and feasible.

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